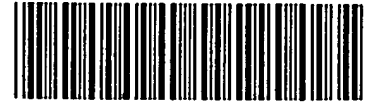


11



OIKE

RAW SEQUENCE LISTING

DATE: 01/17/2003

PATENT APPLICATION: US/09/964,059B

TIME: 11:02:10

Input Set : N:\vernette\09964059B.RAW

Output Set: N:\CRF4\01172003\I964059B.raw

1 <110> APPLICANT: Frudakis, Tony
 3 <120> TITLE OF INVENTION: Efficient Methods and Apparatus for High-Throughput
 Processing of Gene

4 Sequence Data
 6 <130> FILE REFERENCE: 0201-0001
 8 <140> CURRENT APPLICATION NUMBER: US 09/964,059B

C--> 10 <141> CURRENT FILING DATE: 2002-12-23
 12 <150> PRIOR APPLICATION NUMBER: US 60/274,686
 13 <151> PRIOR FILING DATE: 2000-03-08
 15 <160> NUMBER OF SEQ ID NOS: 239

17 <210> SEQ ID NO: 1
 18 <211> LENGTH: 480
 19 <212> TYPE: DNA
 20 <213> ORGANISM: Homo Sapiens
 22 <400> SEQUENCE: 1

ENTERED

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 25 tgctccttta tccatgtact gaagaataaa tattgtgaaa gcagtcataa aaacagaagt 180
 26 aatcttttgg tacctctgca ttagaactct ttattaacca ggtgtattgc cattcaacag 240
 27 taatatatttg aaaggaatct ctatttttga gcagggttca acttctgctt tttattttta 300
 28 acagtagact tgaaatattc agtaaccatg ctataaagag ctatgctgta agacagcttt 360
 29 ttctatttat agagcatggg ttgaaatta taacaaagca tgggttttat cctgaaatca 420
 30 ttcataaata acacgtacca aaactttaat acgggctagc cagtgtgagc cagtgtgacg 480

32 <210> SEQ ID NO: 2
 33 <211> LENGTH: 22
 34 <212> TYPE: DNA
 35 <213> ORGANISM: Homo Sapiens
 37 <400> SEQUENCE: 2

38 ttccagaagg ctttccattt ac 22
 40 <210> SEQ ID NO: 3
 41 <211> LENGTH: 21

42 <212> TYPE: DNA
 43 <213> ORGANISM: Homo Sapiens
 45 <400> SEQUENCE: 3

46 gttcaagtct tggtagctgc t 21
 48 <210> SEQ ID NO: 4
 49 <211> LENGTH: 780

50 <212> TYPE: DNA
 51 <213> ORGANISM: Homo Sapiens
 53 <400> SEQUENCE: 4

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 55 tacagcagct gtaactgatt gaaatctatt ttatgaacaa taagacttga aagttaaaat 120
 56 tgctccttta tccatgtact gaagaataaa tattgtgaaa gcagtcataa aaacagaagt 180
 57 aatcttttgg tacctctgca ttagaactct ttattaacca ggtgtattgc cattcaacag 240

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/964,059B

DATE: 01/17/2003

TIME: 11:02:10

Input Set : N:\vernette\09964059B.RAW

Output Set: N:\CRF4\01172003\I964059B.raw

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58 taatattttg aaaggaatct ctatttttga gcaggtttca acttctgctt tttattttaa 300
59 acagtagact tgaaatattc agtaaccatg ctataaagag ctatgctgta agacagcttt 360
60 ttctattttat agagcatggg tttgaaatta taacaaagca tgggttttat cctgaaatca 420
61 tgctccttta tccatgtact gaagaataaa tattgtgaaa gcagtcataa aaacagaagt 480
62 aatcttttgg tacctctgca ttagaactct ttattaacca ggtgtattgc cattcaacag 540
63 taatattttg aaaggaatct ctatttttga gcaggtttca acttctgctt tttattttaa 600
64 acagtagact tgaaatattc agtaaccatg ctataaagag ctatgctgta agacagcttt 660
65 ttctattttat agagcatggg tttgaaatta taacaaagca tgggttttat cctgaaatca 720
66 tgctccttta tccatgtact gaagaataaa tattgtgaaa gcagtcataa aaacagaagt 780
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69 <211> LENGTH: 510
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71 <213> ORGANISM: Homo Sapiens
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76 acagtagact tgaaatattc agtaaccatg ctataaagag ctatgctgta agacagcttt 180
77 ttctattttat agagcatggg tttgaaatta taacaaagca tgggttttat cctgaaatca 240
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79 aatcttttgg tacctctgca ttagaactct ttattaacca ggtgtattgc cattcaacag 360
80 taatattttg aaaggaatct ctatttttga gcaggtttca acttctgctt tttattttaa 420
81 acagtagact tgaaatattc agtaaccatg ctataaagag ctatgctgta agacagcttt 480
82 ttcataaata gcacgtacca agacttgaac 510
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93 <211> LENGTH: 21
94 <212> TYPE: DNA
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97 <400> SEQUENCE: 7
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100 <210> SEQ ID NO: 8
101 <211> LENGTH: 21
102 <212> TYPE: DNA
103 <213> ORGANISM: Homo Sapiens
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109 <211> LENGTH: 22
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117 <211> LENGTH: 20

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RAW SEQUENCE LISTING

DATE: 01/17/2003

PATENT APPLICATION: US/09/964,059B

TIME: 11:02:10

Input Set : N:\vernette\09964059B.RAW

Output Set: N:\CRF4\01172003\I964059B.raw

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130 cctctcaagc acattgatca c        21
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133 <211> LENGTH: 21
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137 <400> SEQUENCE: 12
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140 <211> LENGTH: 22
141 <212> TYPE: DNA
142 <213> ORGANISM: Homo Sapiens
144 <400> SEQUENCE: 13
145 taacattcac actaatggca gc       22
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148 <211> LENGTH: 20
149 <212> TYPE: DNA
150 <213> ORGANISM: Homo Sapiens
152 <400> SEQUENCE: 14
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156 <211> LENGTH: 240
157 <212> TYPE: DNA
158 <213> ORGANISM: Homo Sapiens
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162 ttcttttcaa tttctgaatc ataaggattg cctgagccta ggagatcaag gccagccttg 120
163 gcaacatggc gaaatgccat ctctacaaaa aaaaaaaaaa aaattatcta ggtgtggtgg 180
164 caagcaccag tgggtcccagc tactcagaag gctgaggtgg gaggattgct tgagcccagg 240
166 <210> SEQ ID NO: 16
167 <211> LENGTH: 420
168 <212> TYPE: DNA
169 <213> ORGANISM: Homo Sapiens
171 <400> SEQUENCE: 16
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173 taaaaatgta actataaatg tggtatccta ggtctcaaat cagaatgata tgaaagttag 120
174 gaaaccccc tgccactgca gagatctcat ctactttta tgtcctatta taatgggaga 180
175 ctatggcaag aaatttttga tatctacaga atagatctct atttggaaca attttcatct 240
176 ttgtttgatt caataaacag gctaagttct acttacgaag cctataaaac tccaaaactc 300
177 caaatatcca catattccta aatatgtcac ctaactctaa tacatatata acatgatgag 360
178 tacacatcct gtccattttc aagaacttat gcactcatca ctgtacacct tgatatctag 420

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RAW SEQUENCE LISTING

DATE: 01/17/2003

PATENT APPLICATION: US/09/964,059B

TIME: 11:02:10

Input Set : N:\vernette\09964059B.RAW

Output Set: N:\CRF4\01172003\I964059B.raw

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181 <211> LENGTH: 3360

182 <212> TYPE: DNA

183 <213> ORGANISM: Homo Sapiens

185 <400> SEQUENCE: 17

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188 aacagattaa actgactttt acagaataat tattctttta ccttgtttac atggaaagga 180
189 atcctccatt ttaggatgca cataaaatgc cagcctatgt tgatgacatt gccttaaacac 240
190 ttttttttta agtaatttta cagggtagtt aacctgtaaa agaaacagtg gataaacttg 300
191 aaaatgctaa tagcaaaaaa cacttcagcc atggcacata caaccagaag ccaatgatata 360
192 ccttcaacta tagaaattag cgggtgtttc tgtttattcc tgaagcagga ttccatattc 420
193 aagccagaaa ttgtcattca acagaaaaaa tcaggtcaaa acaatcaatc acataatgta 480
194 gcaagacaaa agtatgtgct tatgtgaaga aaaacaaaaa caacaaataa ccgaactttt 540
195 attttcttga atataatatt gatggcaaga ttgctaagag gtcatccctg tatttagttt 600
196 agataaaggc ttccagcata gaacactgtt aagaagtaac tgtcaggagc tatgcagaag 660
197 tgatgagagg caaataatat aaaaactaga aaagcagggt ttaattttct atagacttta 720
198 ttacacatta ttatgttacg agacaaatgc agataattct taatttatca aatttgtgag 780
199 cttaattaac aaaaatatatt gaccctcacc agaaaaacag ataactctaa atctactctg 840
200 aaaatctaata caattgcgaa gtattaccta tttggagact atgtattata tcaaagataa 900
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206 taatcaaagg tatggaatta atcaaatatc aattaagaat tactggaatg cacactcatg 1260
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211 attaatcatc ataagagaag aatcattttt ccagtagccc cactaccatg aatgatattt 1560
212 tcatgagcct cggccacctt ctccaatgga tattgagaac ctatcacagg tttcaaccag 1620
213 ccaattttcca ttccagcttg aagggtgct gcatattgct gaaattcctc ctaagaaaag 1680
214 gaaaaacaaa tttctttttg tagtgaaccg tatgatttaa ttttcagaag cattaaaaaac 1740
215 acttcagaat ctaagtgtta taccatgaag agtctcttac aaatgtgtga cttttgtcaa 1800
216 cttgtccaga actatagaaa aagtagttat ctacagggtg accataaatc ccatctgcct 1860
217 gagacagtgt tagtgtacaa aatacctgtt gtcctgaaat tattactagt atcacatttc 1920
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225 agactcaagt ctttactaag atttacatta gctaacattt caataattat atcaattcct 2400
226 ttctcaccaa catacttcta tataataaaa gagaaatgta gagtaagata gcaagtgaag 2460
227 aactgtaaaa tagctactat ctgtacaaga tattatagaa atatgtttca aatgatatat 2520
228 aaatgtacaa tctttgagac taataatgca aaattttaaa taatctaatt atataatcac 2580
229 gatgtaattc caaggtagca gccagaacat ctaaactgat aaaaatttgt actaaatata 2640

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RAW SEQUENCE LISTING

DATE: 01/17/2003

PATENT APPLICATION: US/09/964,059B

TIME: 11:02:10

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Output Set: N:\CRF4\01172003\I964059B.raw

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232 aaaagcccca aacccccagg gggctcccat ttttattaat aaacaaaaag caaaagaaga 2820
233 tatcattagc tggtcggttt tgcatgattt ttgttgtttt agtgcatttg gttttgttct 2880
234 aaatggttta tcatctgttt gatgcactaa ctcttttggg ctcttggtatg ttggacgctg 2940
235 gctcttacaa aaagctacac acatctacat tatattcatt ttattttaac acacacacac 3000
236 aaatgaatcc ctgtgcccgg gattgcacta ggtaccagga atacaaatac aaacataggg 3060
237 agctcaaaac aaaactagtg agaaagatgg gaaatactac agtcatagct ataaagtaat 3120
238 gggctaagta acacattagc agaaataaat catagaatac agagaaaaaa ggtaaggtt 3180
239 tgattgcctg ccatggtcag ataaagttcc acagagacga tgaactgggc cctcagggat 3240
240 gaataggagt ttcccaagcc aaaagaaagg aaaatgagta aggggaagct agacctgagg 3300
241 ctgagtcagt ctggaccaaa gaaacagaaa agcaaagatg gaggggactg agaacacaag 3360
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244 <211> LENGTH: 2460
245 <212> TYPE: DNA
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248 <400> SEQUENCE: 18
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251 tgcaaaaaag gtaataaact ctcactctta ttttttctt catttgtaat gatctaattt 180
252 acacagtact caatatgttg gaaattctaa tctcccaac gtgaggaagt ggttgaggat 240
253 tagcaaagca ataagtgttt agcaaattgc taatatagta caagtgaaga acttcagaat 300
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258 ttgcattaaa aaatcaattt ttatagctct aagattctag agaagctata ttctatttaa 600
259 tacacataaa caatacaaaa atgatagtaa aagtttaaaa cttagacatc tgttttttta 660
260 ataaattaaa gttttaaaac acgcataaaa attcatcgca ctgaaaaaag gaagcaaaca 720
261 gctttaaagg agtagttggt taaaaacata ttaaaaaacc acgcaagtct ccaaggaaca 780
262 aagtttgact tttgtaaaac agtggaatat ttaccttaa ttttatcaat gtaattcact 840
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264 gtaccagcag tgcccaaaat ctttaagcca taagctctag caatttggca tgctgctaat 960
265 ccaacctgaa aaacaaatat aaccaagag ttatatattc tctacactcc tgtaaacact 1020
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279 gtgggaatgc agttggggtc aagaacagca aagaggggca gctgtgtctca gggaggggag 1860
280 tgtacgaaag ggtcgaagat gaggccagaa aggccaagtc acacagaatc tgaggggtga 1920

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/964,059B

DATE: 01/17/2003
TIME: 11:02:11

Input Set : N:\vernette\09964059B.RAW
Output Set: N:\CRF4\01172003\I964059B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:20; N Pos. 369
Seq#:63; N Pos. 1,2,3
Seq#:146; N Pos. 21,41
Seq#:147; N Pos. 21,41
Seq#:148; N Pos. 41
Seq#:149; N Pos. 8,41
Seq#:150; N Pos. 8,41
Seq#:151; N Pos. 41
Seq#:152; N Pos. 41
Seq#:158; N Pos. 2
Seq#:159; N Pos. 2
Seq#:160; N Pos. 2
Seq#:161; N Pos. 2
Seq#:162; N Pos. 2
Seq#:163; N Pos. 2
Seq#:164; N Pos. 2
Seq#:165; N Pos. 2
Seq#:166; N Pos. 2
Seq#:167; N Pos. 2
Seq#:168; N Pos. 2
Seq#:169; N Pos. 2
Seq#:170; N Pos. 2
Seq#:171; N Pos. 2
Seq#:172; N Pos. 2
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Seq#:174; N Pos. 2
Seq#:175; N Pos. 2
Seq#:177; N Pos. 4
Seq#:178; N Pos. 4
Seq#:179; N Pos. 4
Seq#:180; N Pos. 4
Seq#:181; N Pos. 4
Seq#:182; N Pos. 1,2
Seq#:183; N Pos. 1,2,3,4,5,6
Seq#:184; N Pos. 2
Seq#:185; N Pos. 2
Seq#:186; N Pos. 2
Seq#:187; N Pos. 2
Seq#:188; N Pos. 2
Seq#:189; N Pos. 4
Seq#:190; N Pos. 2
Seq#:191; N Pos. 2
Seq#:192; N Pos. 2
Seq#:193; N Pos. 2

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/964,059B

DATE: 01/17/2003
TIME: 11:02:11

Input Set : N:\vernette\09964059B.RAW
Output Set: N:\CRF4\01172003\I964059B.raw

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Seq#:200; N Pos. 4
Seq#:204; N Pos. 4
Seq#:206; N Pos. 5
Seq#:208; N Pos. 4
Seq#:209; N Pos. 2
Seq#:210; N Pos. 2
Seq#:212; N Pos. 2
Seq#:213; N Pos. 2
Seq#:214; N Pos. 1,2,10
Seq#:218; N Pos. 2
Seq#:219; N Pos. 2
Seq#:220; N Pos. 96,120,148,149,150,175
Seq#:235; N Pos. 9,10,12
Seq#:236; N Pos. 9,10,11,12,13